UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,823	07/12/2006	Ken Udagawa	07241.0047	6526

22852   7590   05/20/2011
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER
JIANG, YONG HANG

ART UNIT	PAPER NUMBER
2612	

MAIL DATE	DELIVERY MODE
05/20/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>04 March 2011</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1,2,4-7 and 11-23</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-2, 4-7, and 11-23</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's amendment filed 3/4/2011 has been entered. Claims 1, 2, 4-7, 11,

and 15-19 are amended. Claims 20-23 are newly added. Claims 1-2, 4-7, and 11-23

are pending.

Response to Arguments

Applicant's arguments with respect to claim 1-2, 4-7, and 11-23 have been

considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

1.   Claim 1-2, 4-6, 11-17, and 20-23 rejected under 35 U.S.C. 103(a) as being

unpatentable over Hashimoto et al. (US 6,081,619), and further in view of Nakatani et

al. (US 6,522,912).

Regarding claim 1, 16, and 20, Hashimoto discloses an information recognition

device and method, comprising:

a thermal radiation detection unit for: sensing thermal radiation emitted from a

sensed object (via sensor head 21 comprising pyroelectric devices 11 detecting

different thermal patterns, Col. 9, lines 15-17 and 40-65, Col. 28, lines 8-20; Fig. 4 and

Fig. 31(a)-(c)); and generating an output waveform based on the sensed thermal

radiation (via output from sensor head 21, Col. 9, lines 50-59);

a signal processor (via signal processing circuit 22, Col. 9, lines 55-65);

a behavior pattern model storage unit for storing a behavior pattern model of a

target object (via movement pattern storage means for storing data about previously

formed various movement patterns, Col. 2, lines 44-47; and Col. 13, lines 17-18); and

an information recognition unit for: comparing the feature data with the stored behavior

pattern model; calculating, based on the comparison result, a likelihood that the sensed

object constitues a target object; and recognizing, based on the calculated likelihood,

the sensed object to be a target object (via output from sensor head 21 supplied to

signal processing circuit 22, and movement pattern detected subject to a comparison

with various movement patterns stored in memory, Col. 9, line 42-65).

Hashimoto discloses the output from the thermal radiation detection unit is

supplied to the signal processor for calculation (Col. 9, lines 50-61), but Hashimoto fails

to specifically disclose the calculation process further includes dividing the output

waveform into a plurality of time series frames; and calculating feature data by

frequency processing the time-series frames in accordance with a predetermined

modeling method.

However, it is old and well known that signal processors may process signals by

converting signals in the time domain to the frequency domain for processing of the

signal. Nakatani teaches such an example of using the concept of discrete Fourier

transform to derive by calculation the magnitude of a signal having a specific frequency. (See Col. 32, lines 1-7 and Col. 34, lines 20-33)

From the teachings of Nakatani, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Hashimoto to include dividing the output waveform into a plurality of time series frames; and calculating feature data by frequency processing the time-series frames in accordance with a predetermined modeling method as taught by Nakatani to use Fourier transform to convert signals into the frequency domain, thereby allowing the properties of the signals received to be compared with the models stored.

Regarding claim 2, the combination of Hashimoto and Nakatani discloses the claimed invention wherein Hashimoto discloses wherein the behavior pattern model storage unit stores plural behavior pattern models depending on respective types of behavior patterns (via movement pattern storage means for storing different passage patterns, Col. 2, lines 44-47; and Col. 13, lines 17-18 and Col. 28, lines 8-20 and Fig. 31(a)-(c)).

Regarding claim 4, the combination of Hashimoto and Nakatani discloses the claimed invention wherein Hashimoto discloses wherein the thermal radiation sensor is a thermo-sensor. (See Col. 9, lines 1-3)

Regarding claim 5, the combination of Hashimoto and Nakatani discloses the claimed invention wherein Hashimoto discloses a quantum thermal radiation sensor (Col. 8, lines 57-61)

Regarding claim 6, the combination of Hashimoto and Nakatani discloses the claimed invention wherein Hashimoto discloses the thermo-sensor is a pyroelectric infrared sensor for detecting infrared emitted from the object-to-be-detected using a pyroelectric effect (Col. 9, lines 1-6).

Regarding claim 11, the combination of Hashimoto and Nakatani discloses the feature data comprises first feature data constituted by a spectrum in a frame unit of the output waveform of the thermal radiation detection unit (via signals obtained from the plural detection portions of the infrared array sensor) and second feature data constituted by an average amplitude value of the spectrum in the frame unit (via movement signal normalizing means uses the reference data to obtain the ratio of the difference between signals to generate normalized data, Col. 4, lines 45-57).

Regarding claim 12, the combination of Hashimoto and Nakatani discloses the claimed invention wherein Hashimoto discloses the first feature data is obtained by transforming a value of the spectrum in the frame unit into a value of a common logarithm (via data transformed into binary coded data, Col. 19, lines 7-22).

Regarding claim 13, the combination of Hashimoto and Nakatani discloses the claimed invention wherein Hashimoto discloses wherein the feature data further comprises third feature data constituted by a difference between feature indicated by the first feature data of a selected frame and feature indicated by the first feature data of the frame immediately before the selected frame (via ratio of the difference between signals, Col. 4, lines 45-57).

Regarding claim 14, the combination of Hashimoto and Nakatani discloses the

claimed invention wherein Hashimoto discloses wherein the feature data further

comprises fourth feature data constituted by a difference between feature indicated by

the second feature data of a selected frame and feature indicated by the second feature

data of the frame immediately before the selected frame (via ratio of the difference

between signals, Col. 4, lines 45-57).

Regarding claim 15, the combination of Hashimoto and Nakatani discloses the

claimed invention wherein Hashimoto discloses wherein when the behavior pattern

model is constituted by the feature data of a high dimension of four or more, the device

comprises: a feature data display unit for displaying the feature data corresponding to

each behavior pattern model stored in the behavior pattern model storage unit as a

coordinate point in a two dimensional space (via result of recognition on display unit 23,

Col. 10, lines 29-32); and a detection result display unit for displaying a coordinate point

corresponding to a detection result of the thermal radiation detection unit in a space in

which the coordinate point of the feature data is displayed (via detection result displayed

on display unit 115, Col. 12, lines 55-67).

Regarding claim 17, claim 17 is computer program of claim 1 above; therefore, it

is rejected for the same reasons as claim 1 above.

Regarding claim 21 and 22, the combination of Hashimoto and Nakatani

discloses the signal processor divides a single output waveform acquired from the

thermal radiation detection unit into the plurality of time-series frames (via discrete

Fourier transform of signals in the time domain, see rejection on claim 1 above).

Regarding claim 23, the combination of Hashimoto and Nakatani discloses the

feature data is calculated from a spectrum of the output waveform of each of the

plurality of time-series frames (via frequency data from Fourier transform processed by

processor, see rejection on claim 1 above).

2.   Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto

et al. in view of Nakatani as applied to claim 1 or 20 above, and further in view of Lee et

al. (US 2003/0058111).

Regarding claim 7, Hashimoto fails to disclose the predetermined modeling

method is an HMM (Hidden Markov model).

Lee teaches using an Hidden Markov model to predict events with a complex

time varying behavior. The HM model provides a powerful probabilistic framework for

learning and recognizing signals that exhibit complext time varying behavior.

(Paragraph 71)

From the teachings of Lee, it would have been obvious to one of ordinary skill in

the art at the time the invention was made to modify the combination of Hashimoto and

Nakatani to include the predetermined modeling method is an HMM as taught by Lee to

use a powerful probabilistic framework to more accurately learn and recognize signals.

3.   Claim 18-19 rejected under 35 U.S.C. 103(a) as being unpatentable over

Hashimoto et al. in view Nakatani as applied to claims 1, 15 or 20 above, and further in

view of Tomooka et al. (US 5,703,368).

Regarding claim 18-19, Hashimoto and Nakatani fails to disclose an alarm

system comprising the information recognition device according to claim 1, 15, or 20

above; a determination unit for determining whether or not the sensed object is a person based on a recognition result of the information recognition unit; and an alarm unit for raising an alarm when the determination unit determines that the sensed object is a person.

Tomooka teaches an alarm system comprising determination means for determining whether or not the object-to-be-detected is a person based on a recognition result of the information recognition device (via human detecting circuit, Abstract); and alarm means for raising an alarm when the determination means determines that the object-to-be-detected is a person (burglar alarm, Col. 1, lines 10-20).

From the teachings of Tomooka, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Hashimoto to include an alarm system comprising the information recognition device according to claim 1, 15 or 20; a determination unit for determining whether or not the sensed object is a person based on a recognition result of the information recognition unit; and an alarm unit for raising an alarm when the determination unit determines that the sensed object is a person as taught by Tomooka to use the information recognition device to monitor a secure area, thereby improving security.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to YONG HANG JIANG whose telephone number is

(571)270-3024. The examiner can normally be reached on M-F 9:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Brian A. Zimmerman can be reached on 571-272-3059. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Y. J./
Examiner, Art Unit 2612

/Brian A Zimmerman/
Supervisory Patent Examiner, Art Unit 2612